Data Logger

The data loggers will be used for various applications in the Kansas Department of Transportation's Research Unit.

The equipment will also be available to other units in the Materials and Research Laboratory for specific unique testing if needed.

The Data loggers shall include the following features (please specifically note where minimum features are not met):

1. Minimum 16 analog channels capable of measuring 16 vibrating wire Strain gauges with thermistors or 48 vibrating wire strain gauges without thermistors.
2. Must have capability to expand number of channels at future date.
3. Minimum 128 MB data storage with option for expanding storage.
4. Must have USB memory stick support.
5. USB and Ethernet interfaces.
6. Capable of setting up a minimum of 6 independent sampling schedules with sample rates from 10ms to days.
7. Must have built-in/be supplied with software to configure data logger and view data in real-time compatible with Windows 7.
8. Internal battery supply for data collection in field.
9. Must have operating temperature range of -45°C to 70°C or bigger.
10. Must have DC Voltage accuracy of 0.1%, DC Current accuracy of 0.15%, DC resistance accuracy of 0.1% and frequency accuracy of 0.1% at normal operating temp. range (5°C-40°C)
11. Must support vibrating wire and other geotechnical sensors. Compatible with all major brands such as Geokon and RST Instruments.
12. At a minimum, must support the following:
    Thermocouples
    Types: B, C, D, E, G, J, K, N, R, S, T
    Calibration standard: ITS-90
    Vibrating Wire
    Frequency range: 500 to 5kHz
    Coil resistance: 50 to 200 Ω
    Stimulation method: single pulse pluck
    Thermistors
    Types: YSI 400xx Series, other types
    Resistance range: <10k Ω
    Strain Gauge and Bridge Sensors
    Configurations: ¼, ½ & full bridge
    Excitation: voltage or current
13. Must be capable of testing the integrity of vibrating wire sensors.